



Ecological Site Description ID:		R231XY129AK	
Ecological Dynamics of the Site:			
<p>This sub-alpine ecological site was observed at high elevation on backslopes of mountains (i.e. < 25% slopes; between 850-1050 meters). In this ecological site, cryoturbation resulted in patterned ground features known as circles. No obvious rock sorting was observed. For community phase 1.1, soils were classified as histoturbels and were composed of organic matter over loess over loamy cryoturbate. While occurring in similar landscape positions as F231XY124AK, soils associated with ecological site 129 have less rock fragments, have permafrost, and are generally moister.</p> <p>Fire was a documented disturbance regime resulting in three observed phases. Fire is a natural and typically unmanaged disturbance regime. For this ecological site, both high- and low-severity fire events were believed to occur. Low-severity and high-severity fires appear to cause differences in the depth of organic material on the soil surface, presence and/or depth of permafrost, present vegetation, and potential vegetation.</p>			
State and Transition Diagram:			
<div><div>1. Reference State</div><div>Subalpine scrub loamy frozen circles</div><div>R231XY129AK</div><div><div>1.1 (HCPC) mixed scrub-stunted spruce-moss scrubland</div><div>1.1b</div><div>1.2 (2FL) Scrub birch-mixed ericaceous scrub-sedge-moss scrubland</div><div>1.2b</div><div>1.2a</div><div>1.3 (2FE) Scrub birch-mixed ericaceous scrub-bluejoint-moss scrubland</div><div>1.3a</div><div>1.1a</div></div></div>			
State ID Number:	1	State Name:	Reference
State Narrative:	<p>For the climax phase, dominant vegetation was a mixture of shrubs growing at the medium, low, and dwarf stratus. Tree cover was sporadic and occurred in the medium, stunted, and regenerative stratus.</p> <p>In a low-severity fire, minimal proportions of the organic mat are consumed and mineral soils will typically not be exposed. Permafrost typically remains in the soil profile, which often perches water. Graminoids and scrubs quickly recolonize and dominate a site using below ground root reserves that were not</p>		

	<p>consumed in the fire event.</p> <p>In a high-severity fire, large proportions of the organic mat are consumed and mineral soils will typically be exposed. Permafrost often drops out of the soil profile and the sites become drier. While many pre-fire species likely regenerate as mentioned above, conditions are suitable for the establishment and growth of species with wind-blown seed (e.g. paper birch, fireweed, willow).</p> <p>Graminoids and moss were more prevalent than forbs and lichens. Medium shrubs are defined to grow 3-10' in height, low shrubs are defined to grow 8" – 3' in height, and dwarf shrubs are defined to grow less than 8" in height. Medium trees grow 15-40' in height, while stunted and regenerative trees are less than 15' in height.</p>		
Photo 1.1			
Community Phase Number:	1.1	Community Phase Name:	Mixed scrub-stunted spruce-moss scrubland
Community Phase Narrative:			
<p><i>Picea mariana</i> and <i>Picea glauca</i> cover primarily occurred in the medium tree stratum but neither species was abundant (i.e total mature tree cover ~7%). This phase had abundant shrub cover evenly distributed across the medium, low, and dwarf shrub strata (total shrub cover ~90% cover). Commonly observed shrub species include <i>Betula glandulosa</i>, <i>Salix pulchra</i>, <i>Vaccinium uliginosum</i>, <i>Ledum palustre</i>, <i>Empetrum nigrum</i>, and <i>Vaccinium vitis-idaea</i>. Graminoids were abundant (~25% cover) and was primarily composed of <i>Carex bigelowii</i>. Moss (~50% cover), leaf litter (~35% cover) and lichen (~20% cover) were all abundant ground covers. The most commonly observed moss species were <i>Hylocomium splendens</i>, <i>Pleurozium schreberi</i>, and <i>Sphagnum sp.</i>, while the most</p>			


commonly observed lichens species were *Cladina* and *Cladonia*. This phase had 5 observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.1a	High-intensity fire. From field observations, fire completely removed the tree canopy and likely reduced the depth of surface organic matter exposing mineral soils.
1.1 b	Low-intensity fire or spot fire. Soils are wet with thick organic mats (i.e. > 15 cm), which may hinder high-severity fires. It was unclear from field observations if this disturbance pathway is typical for this ecological site. A low-intensity or spot fire within the climax phase would likely resemble a late fire phase community.

Photo 1.2			
Community Phase Number:	1.2	Community Phase Name:	Scrub birch-mixed ericaceous scrub-sedge-moss scrubland
Community Phase Narrative:			
<p><i>Picea mariana</i> and <i>Picea glauca</i> cover primarily occurred in the regenerative tree stratum but neither species was abundant (~5% cover). This phase had abundant shrub cover that mostly occurred in the low shrub stratum (~75% total shrub cover) and the most commonly observed species were <i>Alnus viridis</i>, <i>Betula glandulosa</i>, <i>Vaccinium uliginosum</i>, <i>Ledum palustre</i>, and <i>Rubus chamaemorus</i>.</p>			

Graminoids were abundant (~15% cover) and the most commonly observed species were *Eriophorum* and *Carex sp.* Moss (~30% cover) and lichen (~25% cover) formed the most abundant ground cover. The most commonly observed moss species were *Hylocomium splendens* and *Sphagnum sp.*, while the most commonly observed lichens were *Flavocetraria cucullata*. This phase had three observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.2 a	Fire.
1.2 b	Normal time and growth without fire. Overall, late and climax phase plant communities are very similar. Phases were split apart in large part due to the size and amount of trees but this could also be strongly related to many factors including elevation. In general, climax phase communities had higher forb and lichen diversity. The fire return interval was presumed to be shorter then phase 1.1 but longer than phase 1.3.

Photo 1.3			
Community Phase Number:	1.3	Community Phase Name:	Scrub birch-mixed ericaceous scrub-bluejoint-moss scrubland
Community Phase Narrative:			
<p>The tree canopy was minimal and consisted of regenerating <i>Picea mariana</i> (~1%). This phase had abundant shrub cover (~180% cover) that mostly occurred in the medium shrub stratum. The most</p>			

commonly observed species include *Betula glandulosa*, *Vaccinium uliginosum*, and *Vaccinium vitis-idaea*. While graminoids, forbs, and lichens were all minor vegetative components, *Calamagrostis canadensis* was commonly observed. Moss (~40% cover) and woody debris (~10% cover) formed the most abundant ground cover. The most common species of moss was *Polytrichum* sp. This phase had one observation.

Community Pathways	
Pathway Number	Pathway Name & Description
1.3 b	Normal time and growth without fire. Trees establish and surface organic matter increases with time since disturbance.